

Claims

1. A method of testing an RF circuit of a wireless device of a telecommunications system, the method including:

providing the RF circuit to be tested with an input test signal, thus generating an RF output test signal characterizing the response of the RF circuit; and

down-converting the RF output test signal to a BB frequency by using a test structure integrated at least partially into the RF circuit, thus generating a BB output test signal.

2. The method of claim 1, further including accessing the RF circuit with a standardized boundary scan test structure in order to probe the RF output test signal.

3. The method of claim 1, further including accessing the RF circuit with a standardized boundary scan test structure in order to provide the input test signal into the RF circuit.

4. The method of claim 1, further including: mixing the RF output test signal with a pre-defined reference frequency, thus generating an IF output test signal; and

sampling the IF output test signal with a sampling rate lower than the frequency of the IF output test signal, thus producing the BB output test signal in an analog format.

5. The method of claim 1, further including AD-converting the BB output test signal from an analog format into a digital format.

6. The method of claim 1, further including: generating a BB input test signal; and

up-converting the BB input test signal into a radio frequency, thus generating the input test signal at a radio frequency.

7. The method of claim 6, further including up-converting the BB input test signal into the radio frequency in an Analog Boundary Module.

8. The method of claim 1, further including down-converting the RF output test signal in an Analog Boundary Module.

9. The method of claim 1, wherein the test structure is based on a standardized boundary scan architecture.

10. The method of claim 1, wherein the test structure includes at least one element in a group comprising: a Test Control Circuitry, a Test Bus

Interface Circuit, a Test Access Port, an Analog test Access Port, an Analog Boundary Module, Digital boundary module.

11. The method of claim 1, further including determining the response of the RF circuit to the RF input test signal by using the BB output test signal in order to obtain a test result.

12. The method of claim 11, further including communicating the test result to a production line producing the wireless device.

13. The method of claim 1, further including performing a testing of a digital circuit of the wireless device with the test structure.

14. The method of claim 1, further including performing a testing of a BB analog circuit of the wireless device with the test structure.

15. An arrangement for testing an RF circuit of a wireless device of a telecommunications system, the arrangement including:

providing means connected to the RF circuit, the providing means for providing the RF circuit to be tested with an input test signal, thus generating an RF output test signal characterizing the response of the RF circuit; and

down-converting means connected to the RF circuit and integrated at least partially into the RF circuit, the down-converting means for down-converting the RF output test signal to a BB frequency, thus generating a BB output test signal.

16. The arrangement of claim 15, further including first accessing means connected to the down-converting means, the first accessing means for accessing the RF circuit in order to probe the RF output test signal.

17. The arrangement of claim 15, further including second accessing means connected to the providing means, the second accessing means for accessing the RF circuit in order to provide the input test signal for the RF circuit.

18. The arrangement of claim 15, further including: mixing means connected to the RF circuit, the mixing means for mixing the RF output test signal with a pre-defined reference frequency, thus generating an IF output test signal; and

sampling means connected to the mixing means, the sampling means for sampling the IF output test signal with a sampling rate lower than the frequency of the IF output test signal, thus producing the BB output test signal in an analog format.

19. The arrangement of claim 15, further including AD-converting means operationally connected to the down-converting means, the AD-converting means for AD-converting the BB output test signal from an analog format into a digital format.

20. The arrangement of claim 15, further including: generating means for generating a BB input test signal; and

up-converting means connected to the RF circuit and the generating means, the up-converting means for up-converting the BB input test signal into a radio frequency, thus generating the input test signal at a radio frequency.

21. The arrangement of claim 20, wherein the up-converting means is located in an Analog Boundary Module integrated into the RF circuit.

22. The arrangement of claim 15, wherein the down-converting means is located in an Analog Boundary module integrated into the RF circuit.

23. The arrangement of claim 16, wherein the first accessing means includes at least one element in a group comprising: a Test Control Circuitry, a Test Bus Interface Circuit, a Test Access Port, an Analog test Access Port, an Analog Boundary Module, Digital boundary module.

24. The arrangement of claim 17, wherein the second accessing means includes at least one element in a group comprising: a Test Control Circuitry, a Test Bus Interface Circuit, a Test Access Port, an Analog test Access Port, an Analog Boundary Module, Digital boundary module.

25. The arrangement of claim 15, further including: determining means operationally connected to the down-converting means, the determining means for determining the response of the RF circuit to the input test signal by using the BB output test signal in order to obtain a test result.

26. The arrangement of claim 25, further including communicating means operationally connected to the determining means, the communicating means for communicating the test result to a production line producing the wireless device.

27. The arrangement of claim 15, further including first performing means for performing testing of a digital circuit of the wireless device.

28. The arrangement of claim 15, further including second performing means for performing testing of a BB analog circuit of the wireless device.